HLC Project 2018. Jagiellonian University excavations in southern Jordan

Abstract: A complex picture of the prehistory in southern Jordanian emerges from the excavations of the Jagiellonian University team, which carried out in 2018 its second season of excavation at the sites of Munqata'a and Faysaliyya, even as analyses of the previous season's finds were underway. Human communities living here between the Neolithic and early Bronze Age practiced both sedentary and mobile lifestyles. The changing landscape around them, caused by natural erosion processes and periodical climate changes, is also factored into the interpretation of the explored relics.

Keywords: prehistory, Neolithic, southern Jordan, lithics, HLC Project

The works of the HLC Project in the 2018 season were conducted between August and September 2018 and focused on continuation of excavations at Munqata'a and Faysaliyya sites. The second aim of the season was to analyze data obtained in previous season, during excavations and survey prospection. Since the main assumption of the currently carried out by the team of the project research activities is to search and study early Bronze Age traces in the area of southern Jordan, the works focuses on the sites where such a material was preliminarily dated. In-depth research, however, allows to verify initial conclusions and confirm or exclude such

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dating. As a result, an increasingly clear image of the late prehistory of this area is created, based on excavations as well as on surface and landscape studies.

An important obstacles in achieving above mentioned goals are related with the small number of well dating finds on the excavated sites and significant difficulties in obtaining material suitable for 14C dating. This situation is an effect of post-disposition processes and very dynamic natural erosion of the sites which causes the lack of organic materials suitable for this type of analysis.

On the other hand, the huge amount of flint material leaves no doubt as to the high activity of human groups in the studied sites as well as in the whole region. Identified architectural relics of both settlement or encampment buildings seems to be also an evidence of such situation. Particularly interesting in this context seems to be the landscape analysis of the area around of Tafila and Shawbak cities, based on data obtained by the project team during surface works that are currently under further development.

GEOARCHAEOLOGICAL OBSERVATIONS

During the season 2018 the geoarchaeological research in the HLC Project concentrated on the Faisalliyyah archaeological site. They were conducted as the continuation of the geological test trench dug in the year 2017. The exploration was taken on the level -170 cm underground and continued down to the level -340/350 cm underground. Unfortunately still the bare rock was not reached. The rough estimation based on the trigonometric measurement of contemporary river bottom shows that it could be still 200–300 cm below actual bottom of the geological test trench. Despite this the interesting sedimentological observations were done. On the 3.50 m profiles at least five geological layers could be distinguished.

The first one (counting from the top down) is contemporary (Holocene) layer of silt–loess gravels formed in eolic and sporadic rainfall conditions. The second one consists of the silt–sand and much more numerous amount of gravels. It was formed probably in seasonal rains conditions. The third layer was formed in slow water, reductive conditions (small oxbows or puddles). The layer four is the result of seasonal but frequent and very dynamic water streams. The last – fifth layer is typical fluvial sediment of degraded mountain river. In general terms the number and size of gravel blocks rises from top to bottom. There are some levels enriched in them. The horizons of terra rossa and/or rendzina are visible in the profile.

The sediments were sieved, weight, counted, and petrographicaly described what will be one of the basic during the paleo-environmental reconstruction. The very important statement done on the basis of this geological trench is the presence of prehistoric artifacts down to the bottom of the profile. The artifacts are in the secondary position being the part of fluvial gravels. Despite this their presence in the Pleistocene sediments is the argument in the discussion on human settlement of the area.

At the Faisalliyyah archaeological site three OSL samples were taken. Two of them were from the zone B and one from the zone A. The last one was taken from the geological test trench, from the layer 4. The samples were conducted to datation (see in the section below). Because of calcareous duricrust, the levels of caliche and carbonates mineralization on the gravels several samples for U/Th dating were taken too. All these samples could help to date independently the sediments and especially the archaeological (human occupation) layers.

FAYSALIYYA: FIELDWORK IN 2018

In the 2018 season, we continued excavation works according to the methodology adopted in the season of 2017 (see Kołodziejczyk *et al.* 2018). Exploration of archaeological layers was conducted within *loci* from which archaeological artefacts were acquired within three-dimensionally measured *baskets* reflecting single digging operations within *loci*.

Table 1. Faysalliya: stratigraphic division of the archaeological record in trenches W and E

Stratum	Chronology/origin	Loci Trench W	Trench E	Description
1	Fluvial accumulation	L115, L104, L101, L102, L116, L117, L119	L12 (topsoil), L14 (topsoil), L15, L19 (topsoil), L16=L17, L20=L17, L26	Non anthropological layer connected to processes of slope erosion. Contains numerous artifacts of varied chronologies.
1a	*post quem* Stratum 2a	W106, L107, W108	–	Layers connected with the functioning of the structure with wall W106
2a	*post quem* Stratum 2b	L105, L118, L122?	L13, L24, L33, L35	Period following the functioning of stone structures: Trench W: structure now in form of collapsed stones (L118) Trench E: structure with wall W11 (after its collapse)
2b	Early Bronze IV/ Middle Bronze I Dating based on C^{14} samples (i.a., L30, floor level, Trench E) and pottery typology	L114, L113, L112, L111, L110, L122?	L15, L21=L22 W11, L25, W27, W28, L29?, L30, L31, L34, L36?	Period of the functioning of stone structures (with wall W11 in Trench E)
3	*ante quem* Stratum 2	L110?, L103, L121, L120,	L32	Layer of fluvial accumulation under stone structures (with wall W11 in Trench E)

The team's work focused mainly on two excavations in Area B: eastern trench (henceforth E) and western trench (henceforth W). These excavations were 65 m apart from each other and therefore the stratigraphic units described as Stratum on both excavations are not synonymous, even if they have the same number [*Table 1*].

TRENCH E

Here work was concentrated in the new square B4112 (henceforth sq. B4112) and partly in sq. B4213, opened in season 2017. In the southern part of the sq. B4112 there was left a 50cm balk bordering on the sq. B4213. On the basis of the research from two consecutive seasons on the trench E we can determine 3 main strata.

Stratum 1. This is a non-anthropogenic layer associated with the processes of slope erosion. It contains numerous artefacts of different chronology.

Stratum 1a. It is an anthropogenic layer connected with the functioning of the wall 106 (henceforth W106). All the *loci* of this stratum were discovered in 2017.

Stratum 2a. The stratum 2a includes *loci:* L105, L118 and probably L122 (not explored yet). The stone rubble was discovered in the western part of the sq. B4112. For the first time it appears at the depth of 1234.55m a.s.l. The lowest known level of occurrence of the rubble recorded in 2018 season is 1234.14m a.s.l. It consists of irregular and untreated stones of large and medium sizes. Under one of the larger stones in the western part of the rubble, the first of several parts of a destroyed ceramic vessel was discovered (see the Pottery section in this article). Several fragments of the same vessel were located under the stones in the same place at the depths from 1234.20 to 1234.03m a.s.l. In addition, among some of the larger stones there were drier and more compact pieces of clay, which could be the remains of mortar. It is difficult to see any arrangement or regularity in their location.

Stratum 2b. The *loci* assigned to this layer are interpreted as contemporary with the once functioning stone structure now preserved only in the form of collapsed stones (L118). The stratum 2b includes *loci:* L111, L112, L113, L114, all of which were discovered in 2017 within the sq. B4213 (see Kołodziejczyk et al. 2018: 387–389). It should be added that round stone structures (L112 and L113) continue northwards beyond the sq. B4213 and therefore it is probable that they connect to L118 and/or L122 at some level beneath the balk not explored in season 2018 [*Fig. 1*].

Stratum 3. It is most probably a fluvial layer of sediments on which later circular structures (L112 and L113) and a stone wall (L118) were created. Rocks occurring within the stratum in L120 have sizes ranging from 3 x 3 x 2cm to 27 x 19 x 10cm, with a significant quantitative advantage of the smallest ones, which may suggest a fluvial activity. Special attention should be paid to looting pit created between the seasons 2017 and 2018 in the northwestern part of the square. Very soon it turned out that right under the level of the looting pit there is a bedrock. After cleaning the northern cross-section of the square (adjacent to the pit) it appeared that the distance from the deepest level of the occurrence of a rubble (L118/L122) to the bedrock is only 17 cm. The bedrock in this place was 90 cm below the surface of the earth.

TRENCH W

In this research season, work in the W zone was focused on the recognition of the stone structure associated with Wall 11 discovered in the season 2017 (see Kołodziejczyk et al. 2018**)**. The total of new 32.5 m² were opening. We've distinguished three main strata to reconstruct the phases of formation of layers in this zone of the site.

Stratum 1. The non-anthropogenic layer associated with the processes of slope erosion. It has a unhomogeneous character and contains numerous material

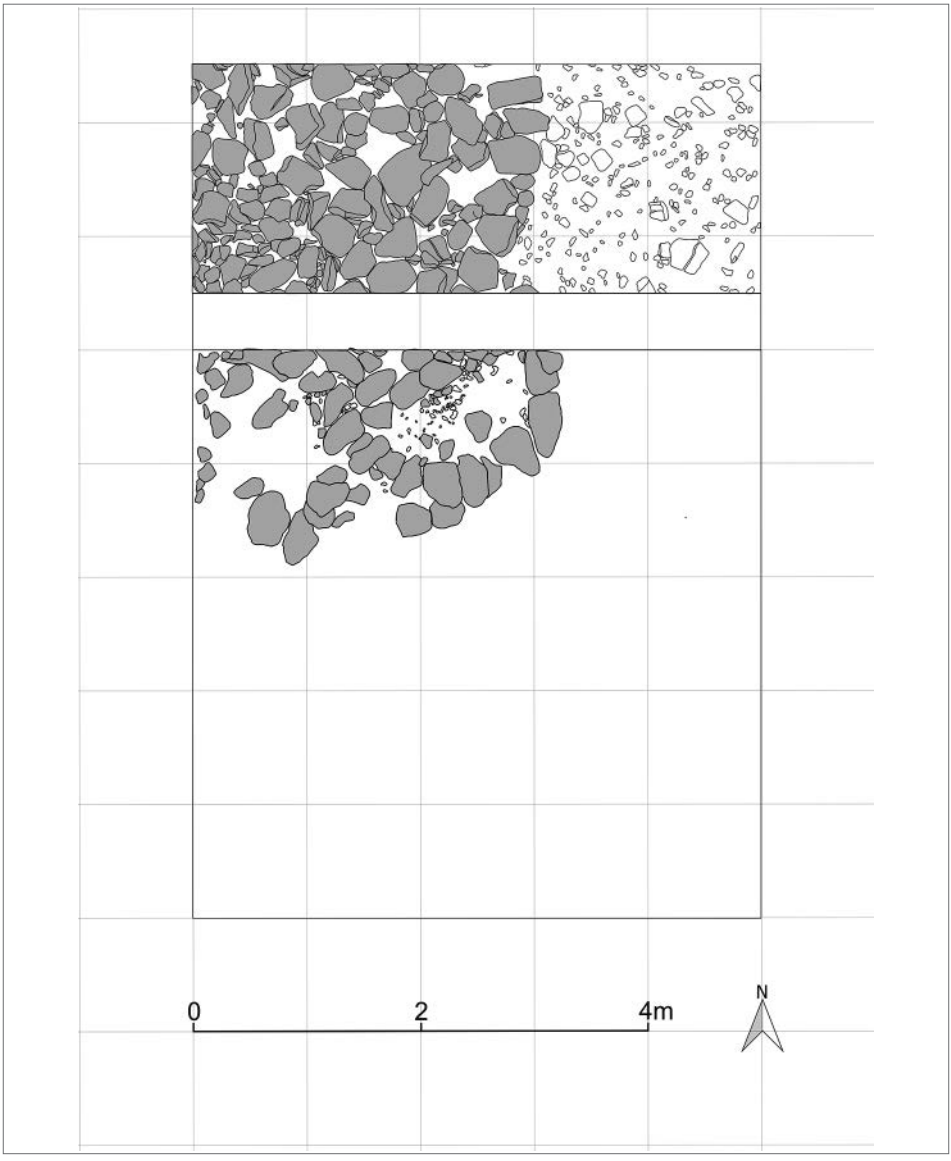

Fig. 1. Faysaliyya. Partly excavated stone structure in trench E (Squares 4213 and 4112) (Jagiellonian University HLC Project/drawing B. Witkowska, J. Karmowski)

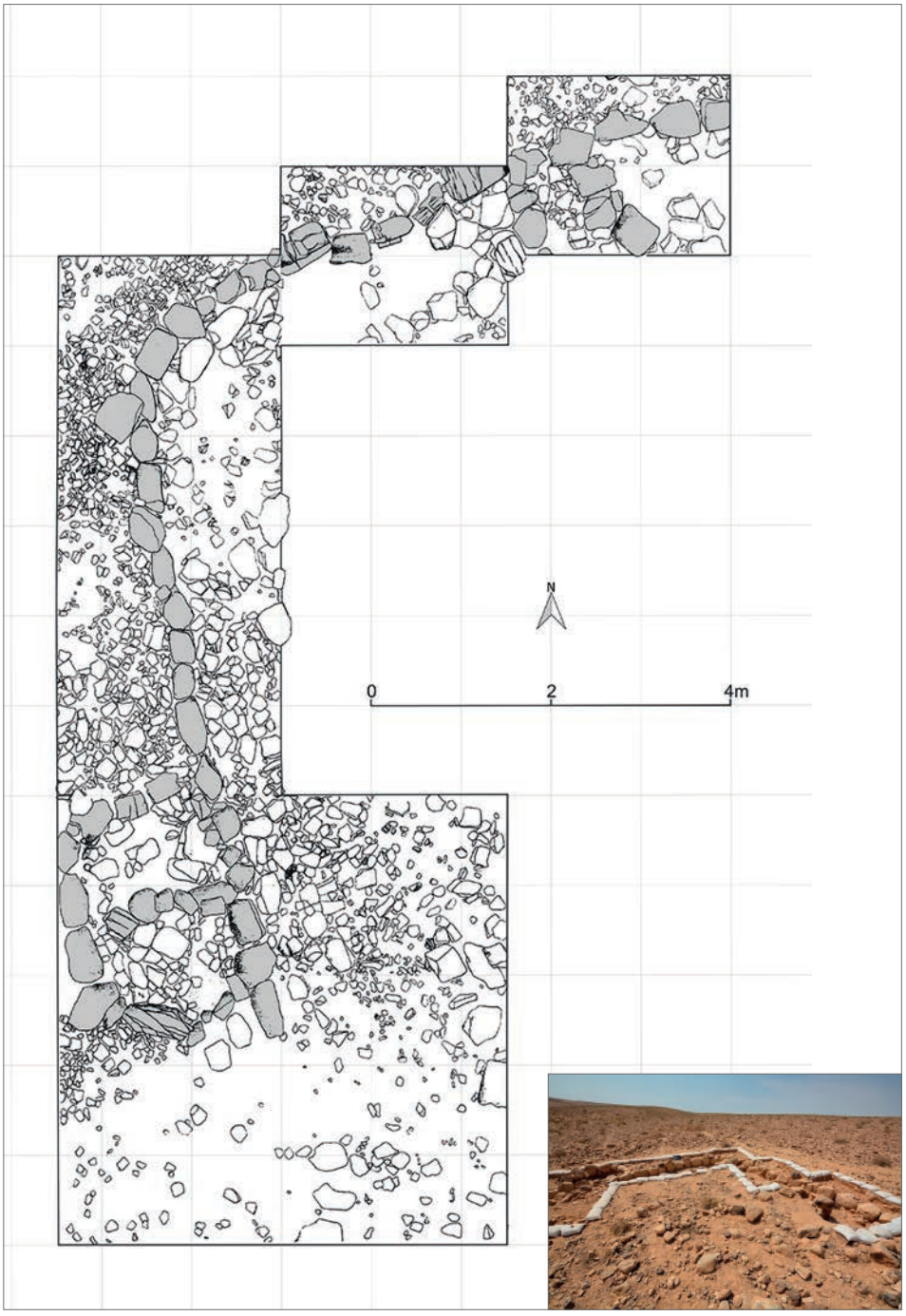

Fig. 2. Faysaliyya. Partly excavated stone structure in trench W; inset, view of the structure looking west (Jagiellonian University HLC Project/drawing B. Witkowska and J. Karmowski, photo P. Kołodziejczyk)

of diversified chronology, undoubtedly located on the secondary deposit.

Stratum 2a. It is a layer associated with the period of cessation of use of the stone structure and its partial natural destruction. The material recorded within stratum 2a should also be treated as non-homogeneous. All locus connected with this layers have the character of stone drifts consisting of medium and large lying in a chaotic arrangement. Their occurrence over the preserved Wall 11 line and the Wall 27 (see stratum 2b) suggests that discovered walls were originally higher.

Stratum 2b. These are locus directly related to the period of creation and use of the stone structure, the main element of which was W11, i.e. a single row of vertically arranged large, untreated boulders sealed at the base with small stones (see Kołodziejczyk et al. 2018) [*Fig. 2* and inset]. It was a type of fence that we only partially recognized at a distance of 14 metres, making it impossible to determine the size of the surrounded area. There were the layers of middle- and small-sized stones, L22 and L29, saturated with material. In the northern part of space there was a hard layer of soil in the form of a threshing floor L30.

The situation in northern section was not very clear due to the concentrations of medium and large stones, which may be fragments of successive internal walls. Confirmation of this hypothesis would require the recognition of a larger area of the site. At this stage of research it seems

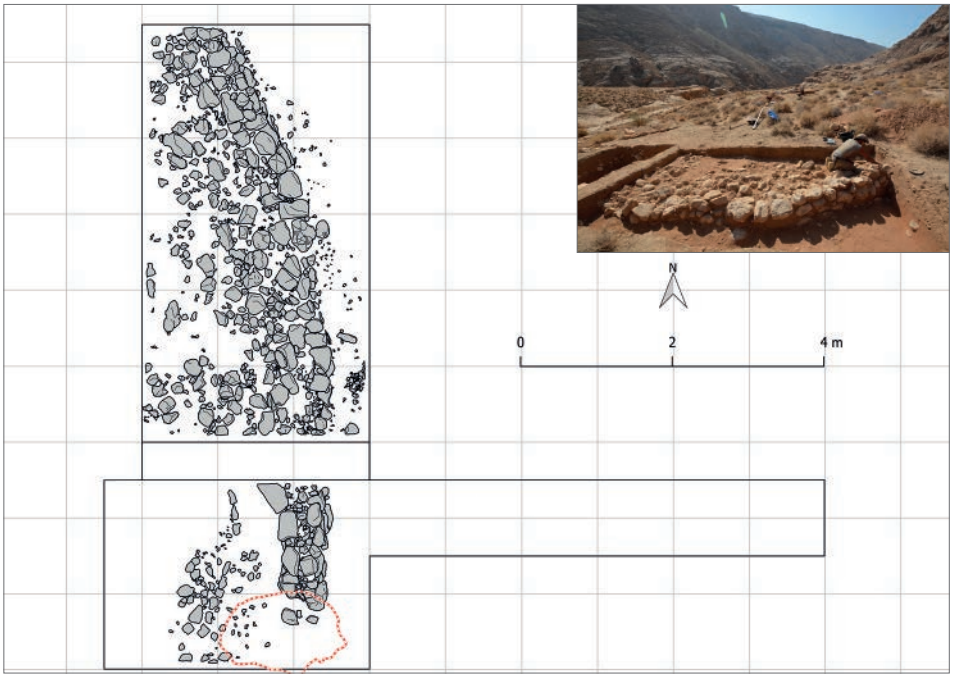

Fig. 3. Munqata'a. Neolithic stone wall and associated features in trench E; inset, the structure in the trench during excavation, looking west (Jagiellonian University HLC Project/drawing B. Witkowska, J. Karmowski; photo P. Kołodziejczyk)

that the stone structure we discovered is a Cell and Fence type structure (see M.B. Tarawneh, F.Q. Abudanah 2013; W. Abu-Azizeh 2013), which is supported by the presence of a circular structure surrounded by W27 located on the outer side of W11. Within this construction, a fireplace marked as L25 and numerous flint materials, fragments of ceramics and the bottom of a mortar-type stone vessel was found [see *Fig. 2*].

Stratum 3. This layer represented by L32 should be interpreted as a layer of natural runoff, on which a stone structure was created. The morphology of the area caused slope erosion contributing both to the accumulation of successive layers and to their destruction and re-deposition.

MUNQATA'A: FIELDWORK IN 2018

The research in the 2018 season was conducted in two zones (Fig. 4). The first – trench E, which is a continuation of the 2017 work has aim to identify the surroundings and the character of the stone structure (see Kołodziejczyk et al. 2018). Two sondages N and E have been delineated here. The second exploration zone, marked as the trench **W** was located 9 metres to the west and was associated with the another stone structure, the outline of which was visible on the surface. The total area of 51 m² was recognized (17.5 m² on sondage N, 6 m² on the E sondage and 28.5 m2 on the trench W).

TRENCH E

Northern extension. located north of the area surveyed in 2017 and separated from it by a baulk 0.50 m wide. Within it the continuation of the W11 was registered with a total length of 8 m. It had a circular course running from the south and turning to the west in the northern part (marked as W21). The construction of the wall was visible only in the south-

Table 2. Munqata'a: stratigraphic division

Stratum	Chronology/origin	Loci	Description
1	Non-anthropogenic layers	L1, L2	Non-anthropogenic layers connected to dynamic erosion processes typical of mountainous terrain
2a	PN mixed with PPN (secondary context)	L28, L14, L16	Layers located outside the curvilinear stone structure; result of fluvial accumulation
2b	PN (Jericho IX) based on pottery typology	L3, L4, L12, L13, W11, L15, L18,* W21, L24, L25, L26, L29	Curvilinear stone structure
3	PN (Jericho IX) based on pottery typology and C^{14} dating	L5, L6, L7, L8, L9, L18	Layers associated with several hearths located below the stone structure
4	PPN based on typology of flint material	L10, L17	Layers located below the hearths; only flint artifacts of earlier chronology

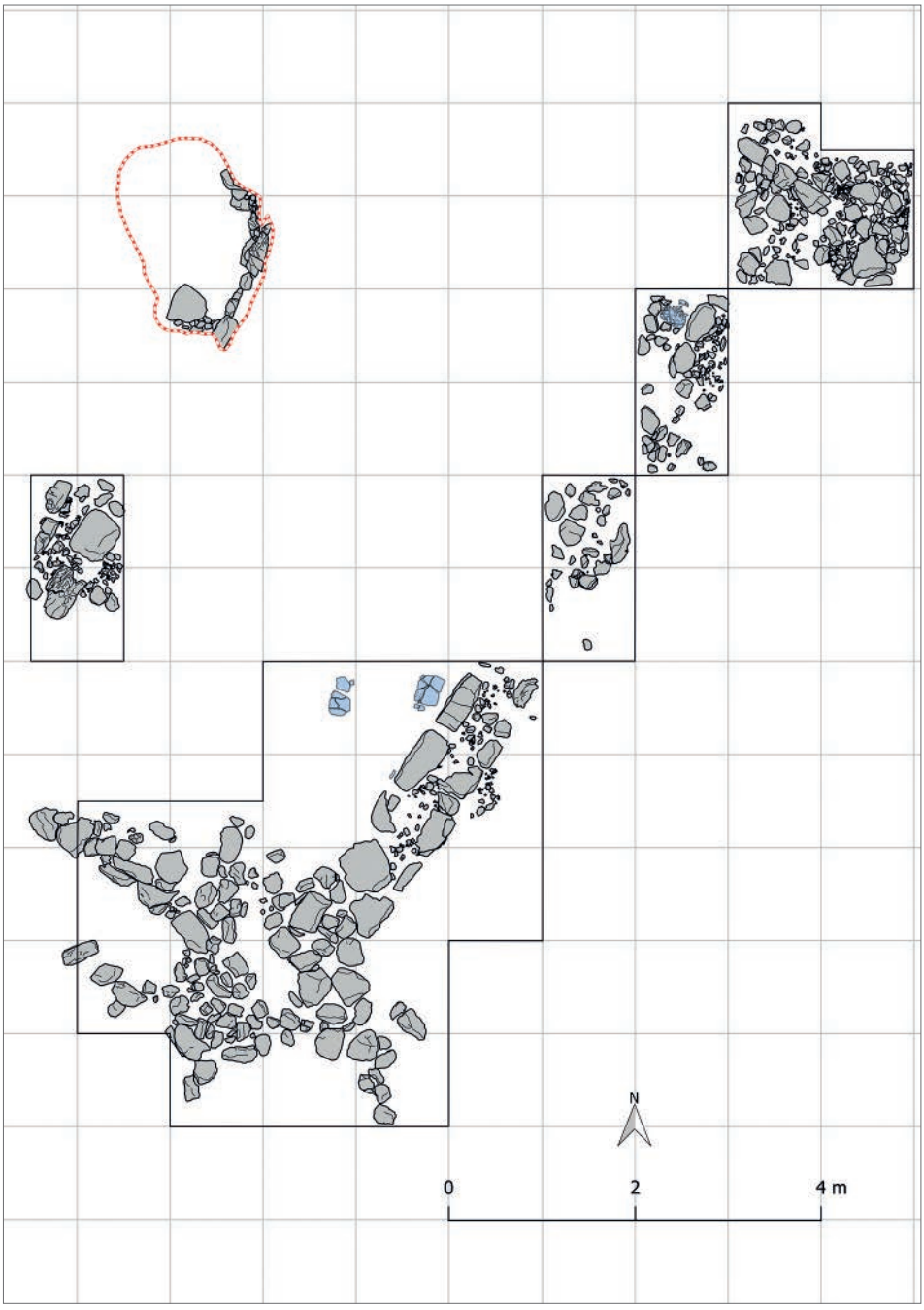

Fig. 4. Munqata'a. Neolithic layers of a stone feature related to the Jericho IX horizon in trench W (Jagiellonian University HLC Project/drawing B. Witkowska, J. Karmowski)

ern section, where had two faces about 70 cm wide and filled with rocky debris (see Kołodziejczyk et al. 2018) [*Fig. 3*]. In the northern part the observations were made difficult by the layer of stones marked as L24, located on the west, inner side of W11 (stratum 2b). Perhaps it is destruct of wall 11, and the artifacts discovered in it are located on the secondary deposit.

The situation on the external side of the wall was slightly clearer, where about 80 cm of height was exposed. The exception the locus number 28, in which the handle of a ceramic vessel was discovered, the prehistorical material was practically not registered here. In the 2018 season, the level related to startum 3 was not reached. The analysis of stratigraphy visible in the northern profile of the sondage leads to the conclusion that L28 was a natural runoff with W11 as a barrier (stratum 2a).

Eastern extension. It was 1 metre wide and directly adjacent to the area surveyed in 2017. In its eastern profile, 7 meters from Wall 11, a fireplace marked as L18 was discovered (stratum 2 or 3). The

Fig. 5. Munqata'a. Partly excavated stone walls of a rectangular structure in trench W (Jagiellonian University HLC Project/photo M. Czarnowicz)

space between the wall and the hearth was filled with runoff layers with visible concentration of artefacts at the eastern face of the W11. Probably this is due to the erosion of the slope and, as in the case of L28 from the N sondage, should not be seen as homogeneous layers associated with the stage of use by the Wall 11 (stratum 2a, see above).

TRENCH W

This trench was established to include stone walls discovered on the surface of the site. Additionally, a nearby looting pit of about 2.5m² was cleaned and documented. As a result of exposing the walls and adjacent spaces, the outline of a rectangular room with sides of about 10.60m by 5.50m was discovered [*Fig. 4*]. It seems that all the *loci* and walls discovered here in 2018 should be connected with the construction and use of the discovered building (all loci belong to the same stratum). The building is oriented towards NE–SW and consists of two well-preserved walls W19 and W32. All walls of the room consist of larger stones placed on the outer sides, forming the face of the wall, and of the filling of smaller stones that are located inside the wall. The width of uncovered walls ranges from 73cm to 90cm. The outer stones were larger and measure from 20 x 12 x 10cm to even 70 x 32 x 30cm. The internal stones constituting the filling were much smaller. The largest of them measured 16 x 12 x 4cm, while the smallest could measure only 1.2cm (in all dimensions). All walls were exposed to the level of one course. In some places, floors are adjacent to the stones of the walls. The cross-section of the looting pit may suggest that there were more courses of stones, but at the present stage of research it is impossible to determine whether they are related to the construction of the wall uncovered on the surface. The location and structure of the rock rubble in the northern (L30) and southern (L22,L23) part of the wall W19 may suggest existence of further walls coming off from it in the direction of NW–SE [*Fig. 5*]. This would mean that the building consisted of more than one room and therefore would exceed 55m², the size for which it can currently be estimated. Around 20cm below the topsoil, a floor of beaten earth (L20, L31) was discovered. On top of it were ceramic vessels *in situ*. Some of them, were probably destroyed by a collapsing walls.

FLINT ARTIFACTS

FAYSALIYYA

During the research carried out on the site in 2018, a total of 3292 flint artifacts were discovered. Almost all of them come from 3 excavations (trench E, trench W and the so-called geological excavation). In addition, several dozen flint artifacts have been collected from the surface in various parts of the site. All artifacts are made of local raw materials easily accessible in the wadi itself or in its immediate vicinity. These are good quality flints characterized by the most common brown-beige (more than 80% of the artifacts) or less often grey (about 20% of the artifacts). The flint inventory discovered in 2018 is characterized by a relatively high proportion

of artifacts in various degrees of damage, which constitute more than 40% of the total. The damage is most often postpositional and results from the in-

Fig. 6. Flint artifacts from Faysaliyya: 1 – Levallois core, 2–7 – Levallois flakes, 8–11 – notches and denticulates (Jagiellonian University HLC Project/drawing J. Zakrzeńska, A. Brzeska-Zastawna and J. Chowaniak)

teraction of various fluvial and eolic processes. Artifacts are characterized by different degrees of patination and weathering of the surface, and some of them have strongly smoothed surfaces (due to fluvial or eolic processes). There were also few burnt flints (less than 1%) in the excavations.

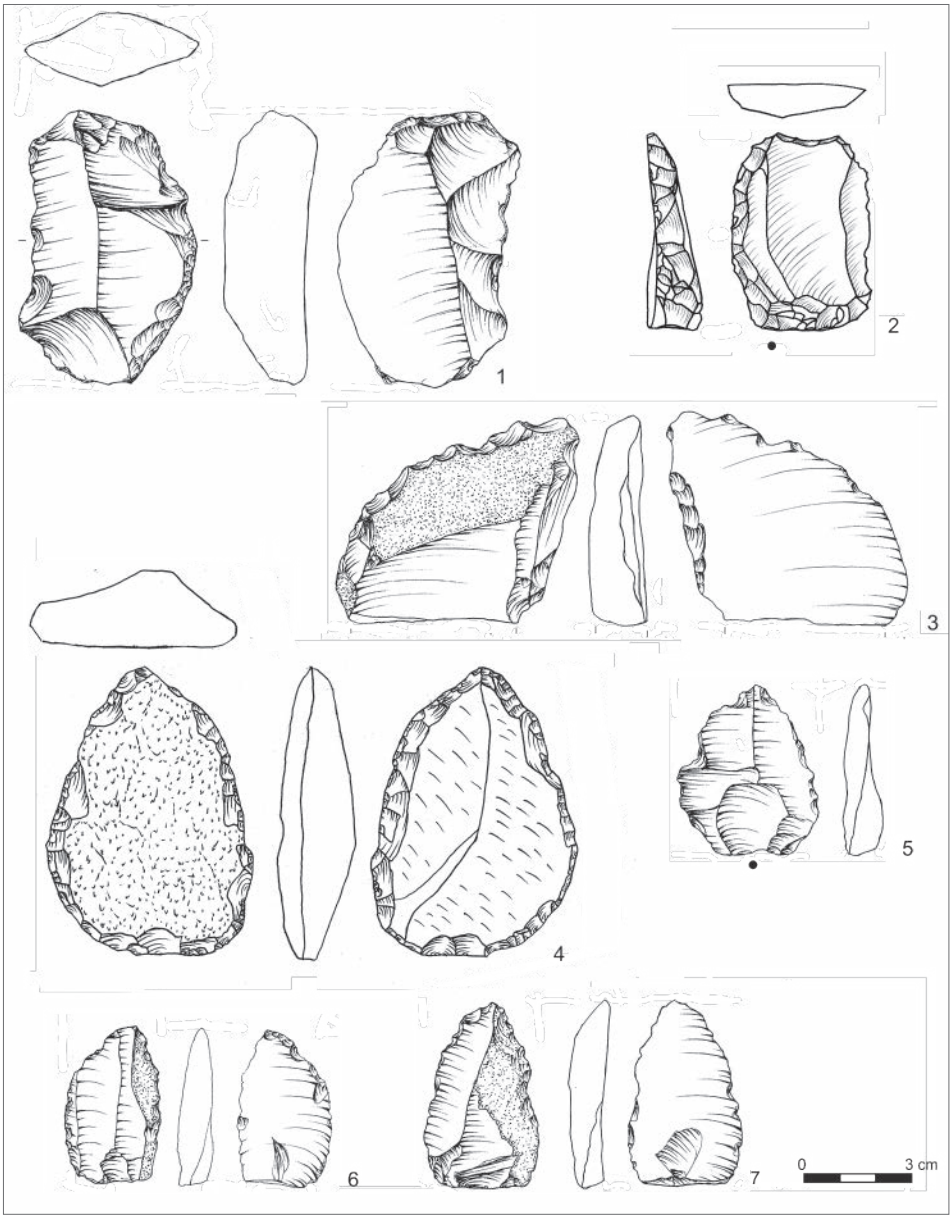

Fig. 7. Flint artifacts from Faysaliyya: 1–4 – scrapers; 5–7 Mousterian points (Jagiellonian University HLC Project/drawing J. Zakrzeńska, A. Brzeska-Zastawna and J. Chowaniak)

Trench E. 800 flint artifacts come from the trench E. More than 80% of them (648 specimens) were discovered in the Stratum 1. Core forms are represented by 8 specimens. These are mainly small, one-platform flake cores or blade-flake cores, the flaking of which is usually limited to the platforms only. Two specimens may be considered as not very regular, recurrent Levallois cores. In both cases, they were intended for the production of flakes. Within the discussed layer, a single hammerstone was also discovered.

The bulk of the artifacts are not very diagnostic flakes, chips and undefined fragments. Among the flakes there are single, characteristic forms that can be combined with core preparation or later repair treatments, such as irregular crested and rejuvenation flakes. Blades are present in the number of 54 and are only from one-platform cores. Taking into account the metric data, 30 artifacts can be defined as bladelets (width less than 12 mm). A single, slightly damaged macro blade with a width of more than 50 mm was also distinguished. In addition, within the discussed layer, there were 11 Levallois flakes [*Fig. 6*] and a single Levallois point.

The tools constitute a group of 73 specimens, among which ordinary retouched flakes (25 specimens) and denticulated/notched tools (21 specimens) predominate [*Fig. 6: 8–11*]. Among them there are single Levallois specimens [*Fig. 6: 2*]. There were also six retouched bladelets and blades. A relatively large group comprises scrapers (seven specimens), among which single forms, both lateral and transversal, predominate. Almost all scrapers were made of massive flakes (some of them can be considered as *debordant* flakes associated with the use of the Levallois technique). Two scrapers were made of initial core flakes, however, due to the morphology of the blanks and the type of retouching only one of them can possibly be considered as tabular scraper. Among other tools, it was distinguished: four endscrapers (including three squat ones, made of flakes and one very slender, made of a regular blade, four microliths (two backed blades/crescents, a truncation and a rectangle), three fragments of tangs of points or small perforators, two flake perforators and a single blade truncation.

Stratum 1a did not provide any flint artifacts.

Within the next layer (Stratum 2a), connected with the stone rubble,, there were 136 flint artifacts. The core forms comprise a small, one-platform flake core with prepared platform and an irregular discoidal core. Nearly 90% of the artifacts are uncharacteristic flakes, chips and undefined fragments. Among the flakes, single irregular crested pieces were distinguished. Among the 6 blades there are only specimens separated from single-platform cores. In this layer there were also 2 Levallois flakes. Among the nine tools, it was distinguished: two damaged points (probably Mousterian) [*Fig. 7*], two denticulated tools (including one made of Levallois flake) and five retouched flakes.

Two consecutive layers together provided only 16 flint artifacts. In Stratum 2b the seven non-characteristic flakes were found. Stratum 3 (interpreted as the run-off layer on which the stone structures were built) provided nine flint artifacts: a single-platform flake core of small dimen-

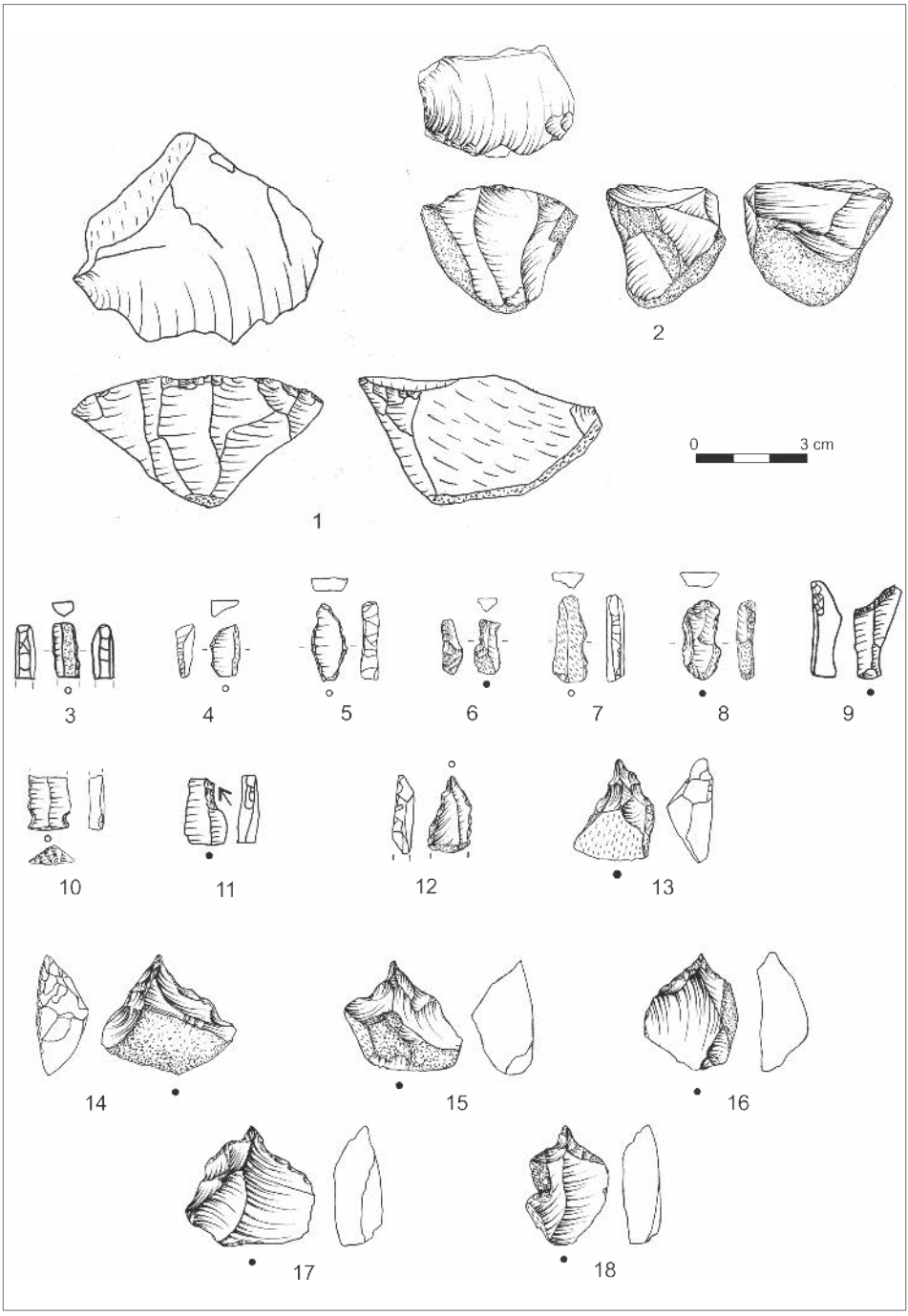

Fig. 8. Flint artifacts from Faysaliyya: 1–2 – single platform cores; 3–9 – microliths; 10 – el-Khiam point; 11 – microburin; 12–18 – perforators (Jagiellonian University HLC Project/drawing J. Zakrzeńska, A. Brzeska-Zastawna and J. Chowaniak)

sions, a denticulated/notched tool and seven non-characteristic flakes.

Trench W. A total of 2377 flint artifacts were discovered in the trench W. More than 60% of them (1523 specimens) come from the runoff layer, marked as Stratum 1. Core forms are represented by 21 artifacts. The vast majority of these are small, single-platform flake cores or blade-flake cores with preparation usually limited to striking platform only [*Fig. 8:1,2*]. In the case of 2 flake cores, one change of orientation was observed. In addition, the core group includes three Levallois flake cores: two recurrent and one preferential [*Fig. 6: 1*]. There were also one hammerstone and four nodules with single scars, perhaps initial cores.

The bulk of the artifacts in the discussed layer are ordinary flakes, chips and unspecified fragments. Among the flakes, several dozen characteristic forms associated with preparation or repairs of cores have been distinguished, such as irregular crested pieces, rejuvenation flakes, tablets, as well as *debordant* flakes. The number of blades is 120. In metric terms, 44 artefacts can be defined as bladelets (width <12 mm) and five as macroblades (width about 40–50 mm). Among the blades there are several irregular crested blades. In addition, within the discussed layer, there were 25 Levallois flakes and six Levallois points [*Fig. 6:4–7*).

The tool group shall consist of 155 specimens. The most numerous are retouched flakes (45 specimens), including also single Levallois forms. In addition, 1 retouched Levallois point was distinguished. The number of retouched blades is six (including one retouched macroblade and two retouched bladelets). Extremely numerous are very standardized, stocky perforators made of small but very thick flakes (35 specimens) [*Figs 8:12–18; 9:3–7*]. Another group of tools are denticulated/notched forms (25 specimens), most often made of common flakes, less often of Levallois forms. The number of scrapers is 13. They are diversified both in terms of morphology and used blanks: there are single lateral and transversal scrapers and double ones, most often convergent [*Fig. 7:2,3*]. Most of the scrapers were made on massive flakes. In some cases, they can be combined with the Levallois technique. The two artifacts are made of flat, cortical flakes, which, combined with the characteristic circular retouching, allows them to be interpreted as tabular scrapers [*Fig. 9:1,2*]. One artifact can be interpreted as a kind of knife because of the clearly formed back opposite to the cutting edge [*Fig. 7:1*].

Among the tools there are also eight microlithes [*Fig. 8:3–9*]. These are only backed pieces and truncations, one of which may be called a crescent. In addition, within the discussed layer there was one artefact, which may be a proximal microburin (?) [*Fig. 8:11*]. The points (5 specimens) are also noteworthy. Most of them are irregularly retouched Mousterian ones [*Fig. 7:5–7*], but there was also 1 damaged el-Khiam point between them [*Fig. 8:10*].

Among the remaining tools, seven less characteristic endscrapers (both flake and blade), five backed blades, five flake truncations, a burin and a rather primitive amygdaloid handaxe were distinguished.

The next layer (Stratum 2a) contains 367 flint artifacts. The number of cores is 10. Two of them are Levallois flake cores

(recurrent and preferential), the others are irregular, single-platform flake cores and blade-flake cores, with preparation usually limited to striking platform only.

The vast majority of artifacts are flakes, chips and undefined fragments. Among the flakes there are irregular crested forms, as well as core tablets and rejuvenation items. The number of blades amounted to 33, of which 10 can be defined as bladelets. There are single crested blade between them. In the layer there were also four Levallois flakes and a single Levallois point.

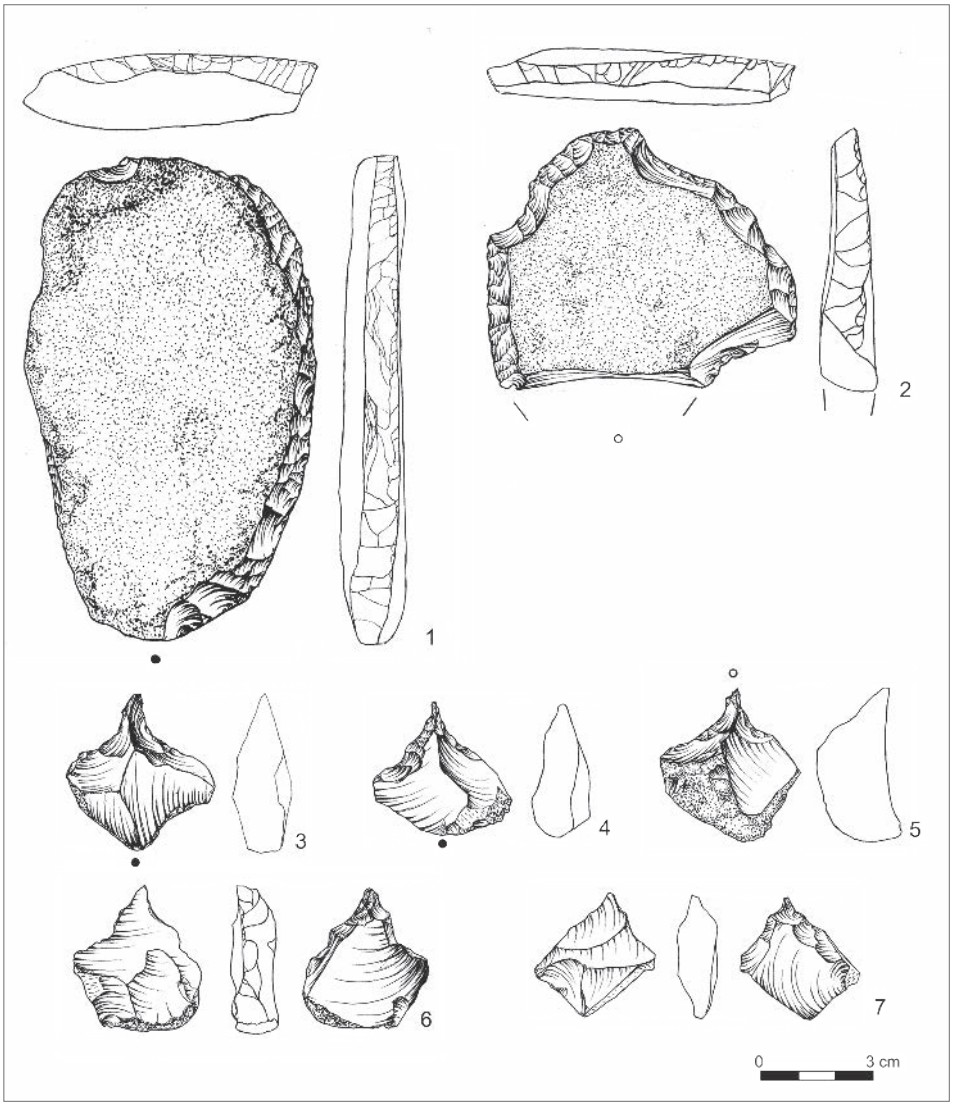

Fig. 9. Flint artifacts from Faysaliyya: 1–2 – tabular scrapers; 3–7 – perforators (Jagiellonian University HLC Project/drawing J. Chowaniak)

Among the 26 tools, it was distinguished: three scrapers (including one which can be interpreted as a knife because of the back opposite the cutting edge), one Mousterian blade, two flake perforators (identical as in Stratum 1), three endscrapers (including one made of very regular blade), nine denticulated and notched tools (several made of Levallois forms) and eight retouched flakes.

The next layer (Stratum 2b), directly connected with the W11 stone structure, provided 481 flint artifacts.

Among the cores (nine specimens) were distinguished: six single-platform small flake cores, a two-platform(?) core for short flakes and two Levallois flake cores (recurrent and preferential).

As in previous layers, the most numerous are flakes, chips and their fragments. Among the flakes there were single crested forms, tablets, rejuvenation flakes and forms from flaking surface repair of blade cores. The number of blades was 34, of which 10 can be defined as bladelets. A few artifacts are irregular crested blades. Seven Levallois flakes and two Levallois points were also found in the layer.

The tools (29 specimens) are represented by seven scrapers (mostly single), seven flake perforators (identical to the ones in the upper layers), three denticulated/notched tools, two endscrapers (flake and blade), two flake truncations, one fragment of an oval or discoidal handaxe and six retouched flakes.

The runoff layer, on which the W11 stone structure was built (Stratum 3) provided only six flint artifacts. Among them, four flakes and two non-characteristic retouched flakes were distinguished.

Geological test. Exploration of the geological excavation was continued from the level of 170 cm and 67 flint artifacts were discovered as a result. With the depth, the conservation status of the artifacts changed in a very visible way: they were more and more smoothed by water, which significantly hindered their recognition and classification. The only core is a massive and irregular specimen that can be interpreted as a kind of initial form or a very large single-platform flake core. More than half of the artifacts (37 specimens) are uncharacteristic flakes and undefined fragments. In the geological sondage five irregular blades were also discovered; 1 can be defined as macroblade (width approximately 40 mm). In addition, a single Levallois flake was distinguished. The group of tools includes 23 artifacts. Among them there are two fairly primitive handaxes(?), five scrapers: single, transversal, and convergent [*Fig. 7:4*], six denticulated/notched tools (one made of a fragment of a macroblade), three retouched blades (in one case the retouching has a backed character) and seven retouched flakes.

Surface finds. In the course of field work in the 2018 season, a small number of surface artifacts were acquired. They were collected in a rather selective way in various parts of the site, and the places where they were obtained were always tracked using GPS. The collection consists of 47 artifacts. Among them are: nine cores, mainly Levallois, but also single discoidal core and two pyramidal cores for macroblades [*Fig. 10:1*], 12 handaxes, mainly cordiform and amygdaloid forms, as well as single Micoquian handaxe [*Fig. 6:2*], four scrapers, one tabular

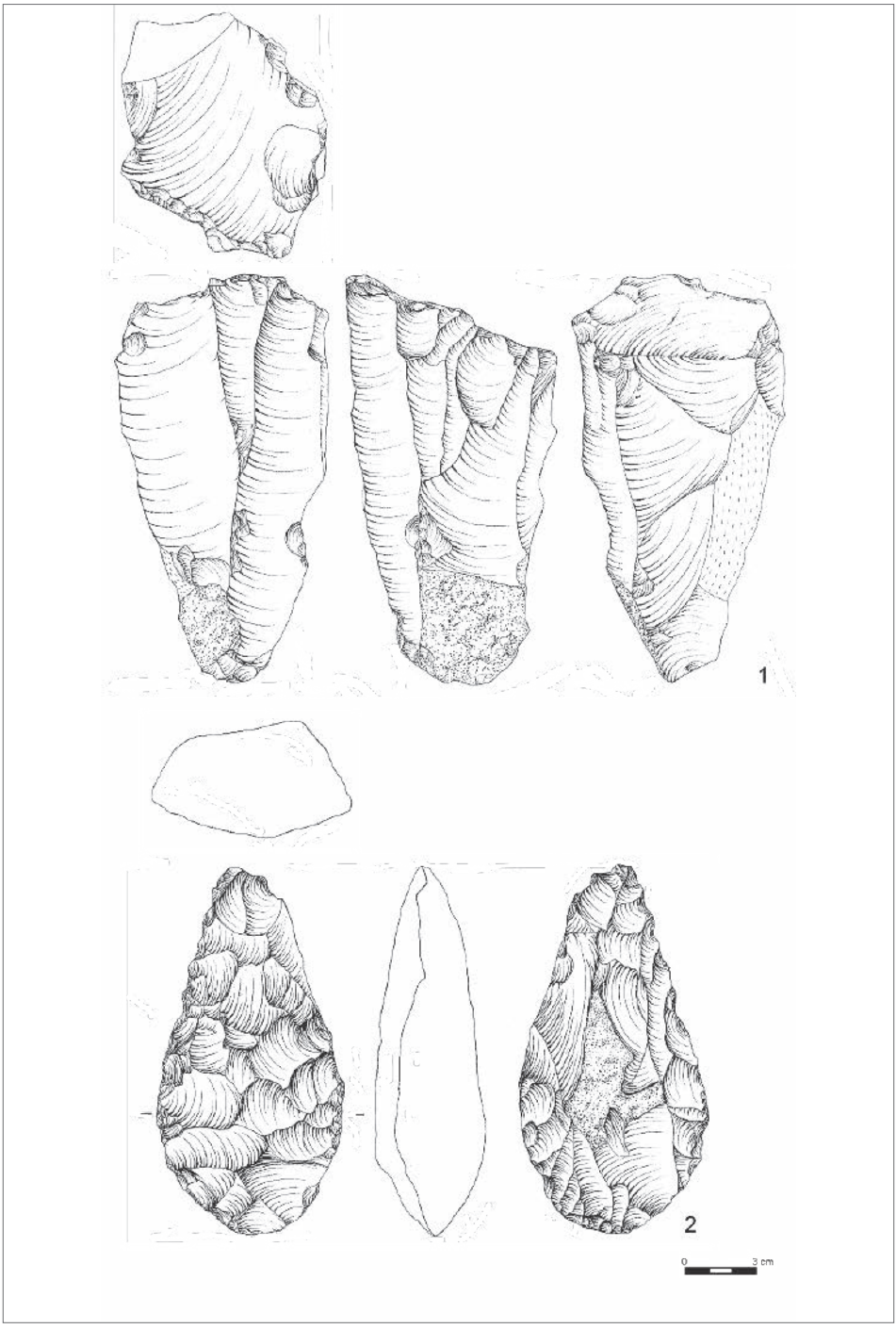

Fig. 10. Flint artifacts from Faysaliyya: 1 – pyramidal core; 2 – Micoquian handaxe (Jagiellonian University HLC Project/drawing J. Chowaniak)

scraper, one axe (unlike other artifacts collected on the northern slope of the wadi, it was discovered on the flattened south side), one scraper made of macroblade, one Mousterian blade, three retouched Levallois flakes, three denticulated/notched tools and 12 blades and macroblades (including six retouched).

SUMMARY

Before proceeding with the proper characterization of the flint inventory of the 2018 season, it is necessary to mention the main research difficulties that arise from the specificity of the Faysaliyya site and significantly reduce the possibility of a comprehensive recognition and interpretation of the discovered remains of human settlement based on flint artifacts. Firstly, the site is a palimpsest with a very broad chronology from the Lower Palaeolithic period at least to the Bronze Age, and its current state is the result of the accumulation of traces of countless settlement phases over hundreds of thousands of years. In addition, the site area is subject to strong fluvial and eolic processes, which significantly disrupt the original arrangement of flint artifacts, both vertically and horizontally. The result is a post-depositional mixture of artefacts from different settlement phases. This makes it impossible to determine the chronology of a significant part of flint specimens discovered at the site, such as undiagnostic flakes or fragments of products. Moreover, even typologically characteristic forms of tools and cores often have a very long lifetime, covering different archaeological periods, and therefore cannot always be precisely dated. Finally, it should also be noted that the majority of chipped lithics from the excavations, including almost all diagnostic forms, occurred in the upper parts of the stratigraphic sequence, considered to be a "non-anthropogenic" runoff layer. It is obvious that such a situation makes it impossible to unambiguously link these artifacts with the discovered stone structures or ceramics.

Despite these difficulties, it is possible to draw some general conclusions about the entire flint inventory discovered in 2018. The general picture of the flint materials in question does not differ significantly from the observations concerning the 2017 season inventory (Kolodziejczyk et al. 2018). Basically, three main chronological horizons can be distinguished, which are visible in the flint material.

The first one is connected with the Late Acheulian and middle Palaeolithic (Levantine Mousterian) settlement and confirmed by the handaxes present at the site, artifacts associated with the use of Levallois technique (cores, flakes, blades) [*Fig. 6:1–7*], various types of scrapers [*Fig. 7:2–4*], knife-type tools [*Fig. 7:1*], retouched Mousterian points [*Fig. 7:5–7*] and a large number of denticulated/notched tools [*Fig. 6:8–11*]. This phase is probably also associated with a part of blades, especially massive macrolithic specimens. It should be emphasized that the surface recognition of the entire site shows that the artifacts of the Lower and Middle Palaeolithic chronology are undoubtedly the dominant elements of the site [*Fig. 10:1,2*], and thus most undiagnos-

tic flint materials should also be dated in this way. Clearly determining whether the discussed phase is more related to the Lower or Middle Palaeolithic is significantly hampered by the post-depositional mixing of materials and by the fact that almost all forms of artifacts occurring in the classical Middle Palaeolithic complexes of the southern Levant, together with the Levallois technique, appear already in the late phase of Acheulian (Shea 2013: 74–76; Rollefson 2017: 578–580), although not all researchers would agree with this thesis. It is worth mentioning here that the Lower and Middle Palaeolithic sites of mixed, palimpsest character are typical of southern Jordan; in addition to Faysaliyya, one should mention here the nearby Fjaje (Rollefson 1981) and the sites located within and on the outskirts of the al-Jahr basin (Rollefson et al. 2005; Rech et al. 2007).

The second chronological phase, readable in flint material, is possibly associated with Natufien/early preceramic Neolithic. Since there is no significant change in the flint inventories of the southern Levant at the turn of late Epipaleolithic and early Preceramic Neolithic (PPNA) (e.g., Belfer-Cohen, Goring-Morris 1996), it is only possible to characterize the flint artifacts included in this phase together. In particular, a part of the small flake and flake/blade cores found in excavation units fits to the late Epipaleolithic or early Neolithic patterns [*Fig. 8:1,2*]. Although in season 2018 no regular bladelet core was discovered, it should be remembered that two such specimens were found in the previous season (Kolodziejczyk et al. 2018). Moreover, among the blades discovered at the site, a significant share is represented by bladelets whose morphology also corresponds to Natufien/PPNA. Stylistically it also refers to the part of slightly larger, regular blades and small flakes. Microliths present at the site should be considered as Epipaleolithic [*Fig. 8:3–9*]. Particularly important are single crescents, whose proportions and steep, backed retouch suggest rather late Natufian chronology (Bar-Yosef 1998 with further references). Theoretically, it can also be confirmed by a single microburin [*Fig. 8:11*], but the microburin technique can be treated as a reliable chronological determinant only in the case of large series of artifacts of homogeneous character (Henry 1974). Among the artefacts that seem to have a stronger connection with PPNA are a fragment of el-Khiam blade [*Fig 8:10*], fragments of tangs of points or small perforators that are difficult to classify unequivocally, as well as numerous standardized flake perforators [*Figs 8:12–18, 13:3–7*], although in their case the chronology may be much wider (see below). Probably a small axe found on the opposite side of wadi has also a connection with Neolithic settlement; however, such artifacts (especially of a small size) appear already in the Natufien (Bar-Yosef 1998). For some tools, it is not possible to indicate a more likely chronology within this phase. This applies mainly to retouched blades that can be used as inserts, as well as other types of tools made of a specific, most often microlithic blanks (Belfer-Cohen and Goring-Morris 1996).

Since ceramics was discovered at the site, including an almost complete vessel dating back to the early or middle Bronze Age, it was also necessary to analyse the

flint inventory from the perspective of the presence of forms typical of the Bronze Age. Although few, they determine the third chronological phase visible in the flint material. The most diagnostic artifacts are several specimens of various sizes of tabular scrapers [*Fig. 9:1–2*]. Basically all of them fall within the classical definition of these tools (Rosen 1983). Although tabular scrapers appear in small numbers already in the late Neolithic, due to the complete lack of other forms characteristic of this period, these artifacts can be connected with Chalcolithic or the Early Bronze Age. Another category of artifacts that may have a late chronology are the already mentioned numerous flake perforators (Rosen 1997: 68–71). However, admittedly, artifacts of this type are also found in the Neolithic, including early Preceramic period, postulated at the site. Some irregular flake cores (including discoidal specimens) and some less diagnostic tools are likely to belong to this phase phase, but due to the disruption of primary contexts they cannot be separated from older, Palaeolithic materials.

MUNQATA'A

A total of 710 chipped lithics were obtained from the Munqata stand in 2018, half of which, 355 pieces, comes from the surface. Almost all of the artifacts from the exploration units (340 specimens) have been acquired in the eastern trench. So far, only 15 artifacts come from the westernzone .

Artifacts from the western trench (W19, L20, L30, L31) are mainly flakes (12 pieces). In addition, one irregular blade and two core forms were found. Special attention should be paid to the last two artifacts. These were initial cores, one blade and one flake core, with prepared platforms and one-sided crests on the right side [*Fig. 11:1–2*]. Both are treated in a very similar way, so one can even assume that they were made by a single manufacturer. These cores are an example of how to adapt the manufacturer's intentions regarding semi-raw material to the natural shape of the core. Oval concretion, but close to conical, has blades negatives, while the second one, brick shaped, has flakes negatives). Unfortunately, it is difficult to identify analogies to these two interesting specimens, as cores at such an early stage of exploitation are very rare. However, it should be noted that both cores were found together with ceramics within a single structure related to the use of a rectangular room discovered in this season. One of the two described cores was in a vessel standing directly by the wall. Discovery in such a context allows for an unambiguous link between these cores and the Pottery Neolithic. It should be noted that in the Western sondage, late Neolithic ceramics were located *in situ* (see the study on ceramics). In addition, the discovery described above indicates that pre-prepared cores intended for further exploitation in the settlement were stored in clay vessels.

As mentioned above, 340 flint artifacts are coming from the eastern trench. As we know, numerous fragments of late Neolithic ceramics were discovered in this area, but most probably it lies only on the secondary deposit (see the study of ceramics).

Last year's findings from L10 (season 2017) as well as this year's findings from

L14, L16 and L17 represent the oldest horizon for the position. The layers of L10, L16 and L17 were located below the layer associated with the neolithic age in ceramics. It should be noted, however, that L16 is most likely the runoff of the layer associated with the ceramic neolithic. In L14 and L17 no pottery was found. The flint inventory of the L14 consists of 58 artifacts: one fragmentarily preserved bladelet core [*Fig. 14:5*], 29 flakes, 19 blades from single-platform cores [*Fig. 12:1,2,7*], four chips and chunks and seven tools. Among the tools appeared: three points, including a fragment of an El Khiam point [*Fig. 12:4*], and probably of another of this type [*Fig. 12:5*] and one Abu Maadi point [*Fig. 12:3*] (Gopher 1994: 31–32), one retouched flake and one retouched blade. In the L17 there were only four artifacts: a chip, one fragment of a core and two tools: a truncated blade [*Fig. 12:8*] and a retouched flake [*Fig. 16:9*].

L16 qualifies for a separate discussion because of the most likely mixed preceramic and ceramic neolithic material. From the context of this came the most numerous flint material, consisting of 147 artifacts: one flake core, 59 flakes, 18 blades and 17 bladelets from single-platform cores [*Fig. 13:1,3,8,10*], 44 chips and chunks and eight tools. Among the tools, three retouched blades [*Fig. 13:2,6*] and five points were noted [*Fig. 13:4,5,7,9*]. Three of them are certainly El Khiam blades, commonly considered to be typical of PPNA [*Fig. 17:4,5,7*] (Nadel et al. 1991; Sayej 2007: 10), one is a fragment of a blade, perhaps also El Khiam, or of the Helwan type [*Fig. 13:9*].This material, except aforementioned suggestions, does not show any features that would allow for a possible chronological stratification within the Neolithic period.

One stratigraphic horizon (Stratum 3) includes L5, L6, L7, L8 and L9 studied in 2017, L6, L7 and L9 in 2017 and 2018. As we know (see stratigraphy), the stratigraphic status of L18 is uncertain; it may belong to either Stratum 3 or 2b. From the flint point of view, however, this is

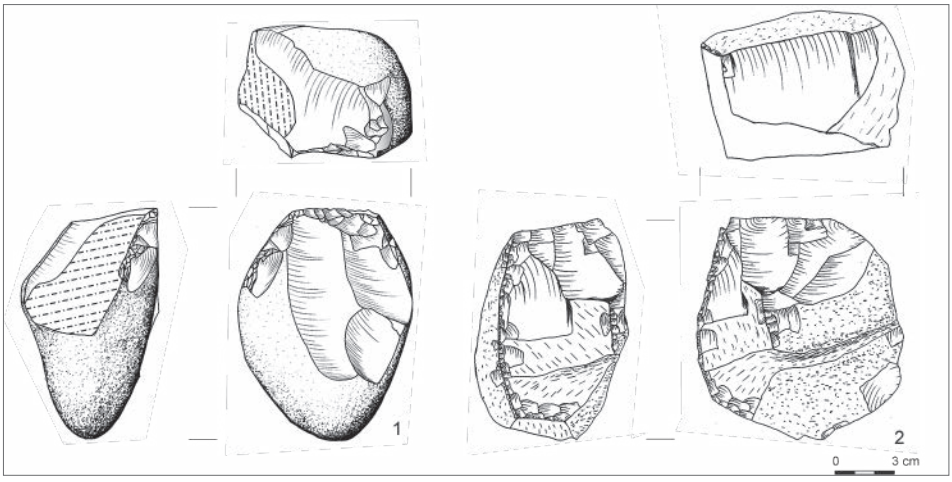

Fig. 11. Flint artifacts from Munqata'a: 1–2 – initial cores (Jagiellonian University HLC Project/drawing A. Brzeska-Zastawna [1], J.Zakrzeńska [2])

not very important, as there were no flint artifacts there. Only 4 specimens come from L9, unfortunately not characteristic: two flakes, a damaged blade and one chip. The locuses associated with Stratum 3 were associated with PN, based on numerous findings of Jericho IX ceramics and the obtained radiocarbon date.

To one stratigraphic complex (Stratum 2b) belong locuses discovered dur-

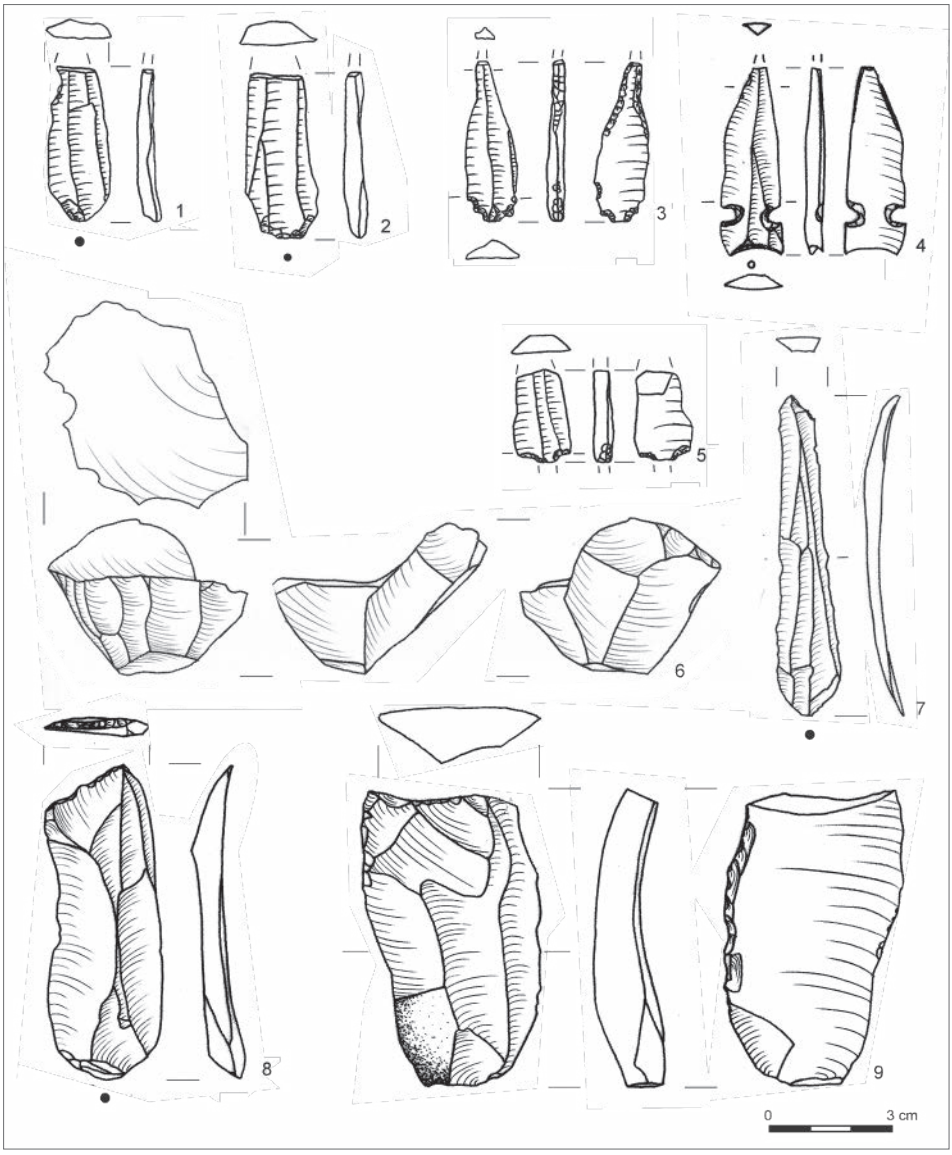

Fig. 12. Flint artifacts from Munqata'a: 1, 2, 7 – blades; 3 – Abu Maadi point; 4 – El Khiam point; 5 – El Khiam point?; 6 – fragment of bladelet core; 8 – truncated blade; 9 – retouched flake (Jagiellonian University HLC Project/drawing A. Brzeska-Zastawna [4, 6–9], J. Zakrzeńska [1–3, 5])

ing the last season (L3, L4, L12, L13, W11) and current season (L15, W21, L24, L25, L26, L29 and possibly also L18, as well as, partly, L16 see above). Within the L15 and, as we already know, L18 there were no flint artifacts. From W11, W21, L24, L25, L26 and L29 (except L16, already described) comes 127 flint artifacts: 1 blade-flake core [*Fig. 14:11*], 88 flakes, 26 blades and bladelets [*Fig. 14:8,9*], four chips and chunks, a burin spall and seven tools. The tools included three retouched flakes [*Fig. 14:4,6,12*], one bifacial tool of the axe-like type made on flake [*Fig. 15:6*], one burin [*Fig. 15:7*], one retouched blade [*Fig. 15:5*] and one probably unsuccessfully truncated blade [*Fig. 15:10*]. One of the flakes [*Fig. 15:4*] has a parallel/subparallel retouch that moderately overlaps the surface of the specimen, which may indicate association with the Middle or Late Neolithic. In addition, it should be mentioned that from last season, a part of the stratum 2b complex of layers comes from a group of blades/bladelets coming from single-platform cores and a group of not very regular flakes, blade sickle insert, three perforators, retouched flakes and blade arched endscraper (Kołodziejczyk et al. 2018). Apart from the stratigraphic issues, it is the strongly visible flake component that speaks in favor of the links between the inventory in question and the Neolithic period. Moreover, it should be noted that apart from bladelets [*Fig. 15:8*], there were also a few blades and tools made on blades, which indicate a production aimed at regular and larger than in the Early Neolithic blade blanks, of a width exceeding 2 cm [*Fig. 15:9,10*].

Artifacts with morphological features, considered typical of phenomena later than the early Neolithic period, unfortunately come from the surface only. This is where we should mention: two fragments of the Nizzanim/Herzliya points

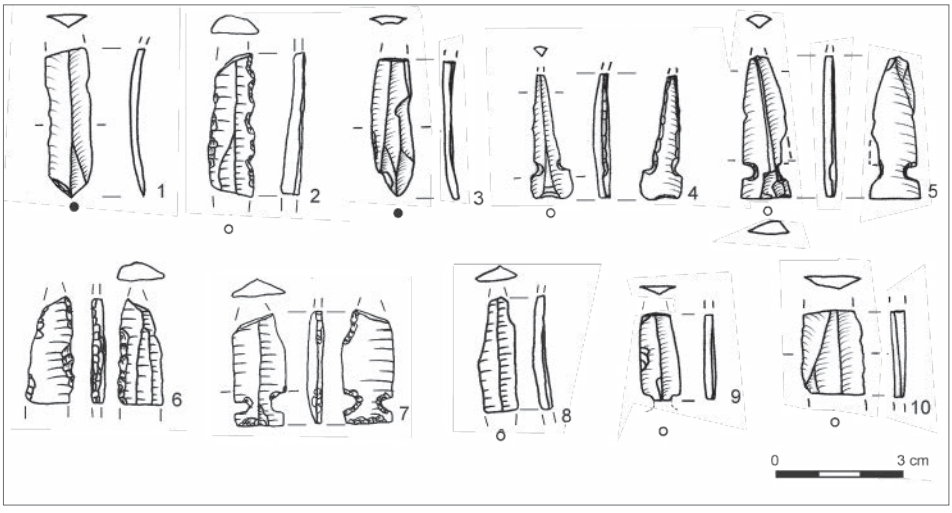

Fig. 13. Flint artifacts from Munqata'a: 1, 3, 8, 10 – bladelets; 2, 6 – retouched bladelets; 4, 5, 7 – El Khiam points; 9 – El Khiam point? (1–3 – surface finds; 4–12 – finds from stratum 2b) (Jagiellonian University HLC Project/drawing A. Brzeska-Zastawna [1, 3–5, 9–10], J. Zakrzeńska [2, 6–8])

[*Fig. 15:2,4*], a fragment of indeterminate retouched tool [*Fig. 15:3*], sickle inserts with parallel, low invasive retouch [*Fig. 15:3*], perforator made on a flake [*Fig. 14:2*], burin

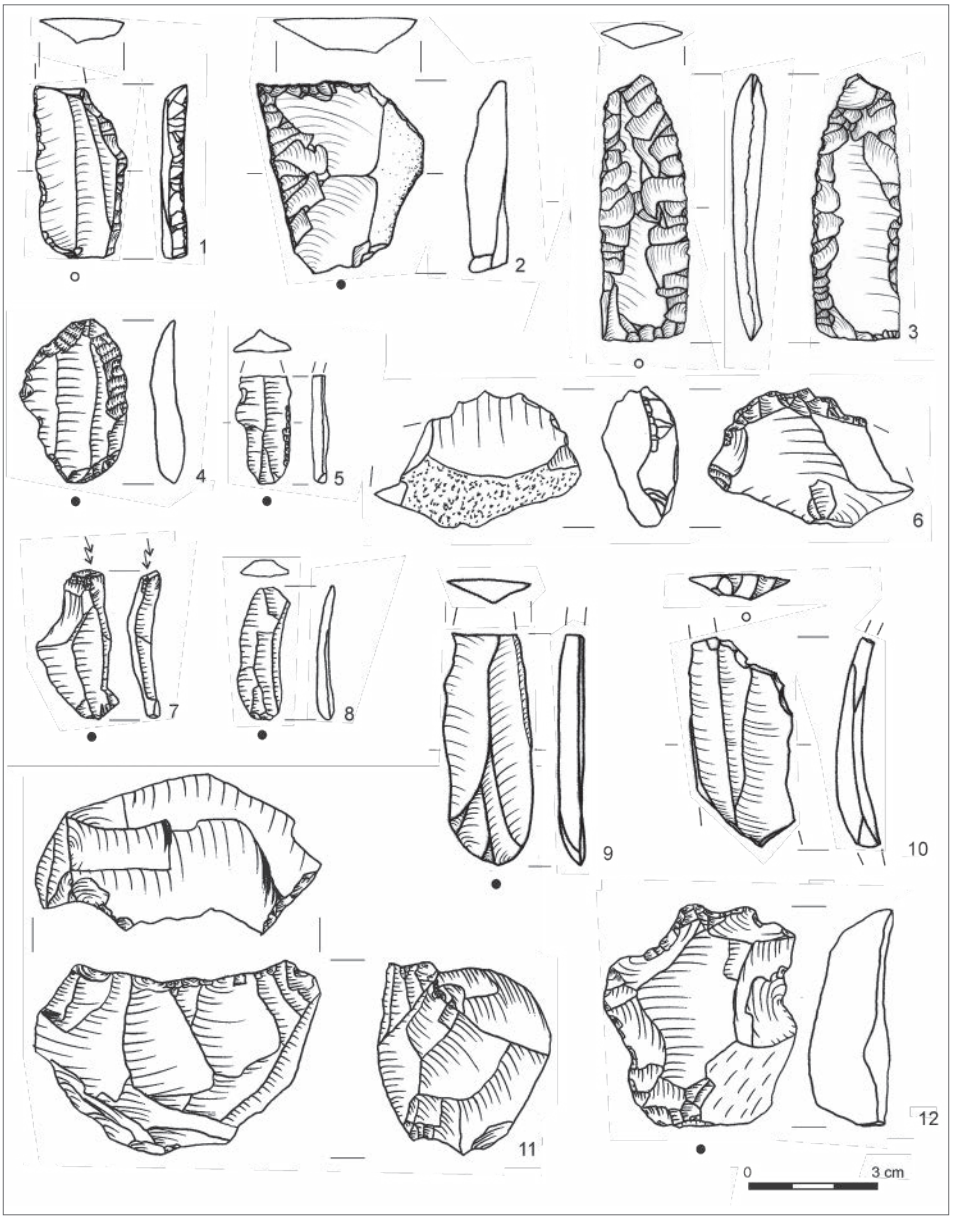

Fig. 14. Flint artifacts from Munqata'a: 1 – backed blade; 2 – perforator; 3 – sickle insert; 4, 6, 10 – retouched flakes; 5 – retouched bladelet; 7 – burin; 8 – bladelet; 9 – blade; 10 – truncated blade; 11 – single platform blade-flake core (Jagiellonian University HLC Project/drawing A. Brzeska-Zastawna, J. Zakrzeńska)

on a knife with flat and semi-flat invasive retouch (paralel and sub-parallel) [*Fig. 15:1*], backed blade made on a blade from a double platform core [*Fig. 14:1*]. The listed artifacts have flat invasive retouches, made probably by pressure technique, which are present since the middle Neolithic period, and popularize in PPNC and PN (Shea

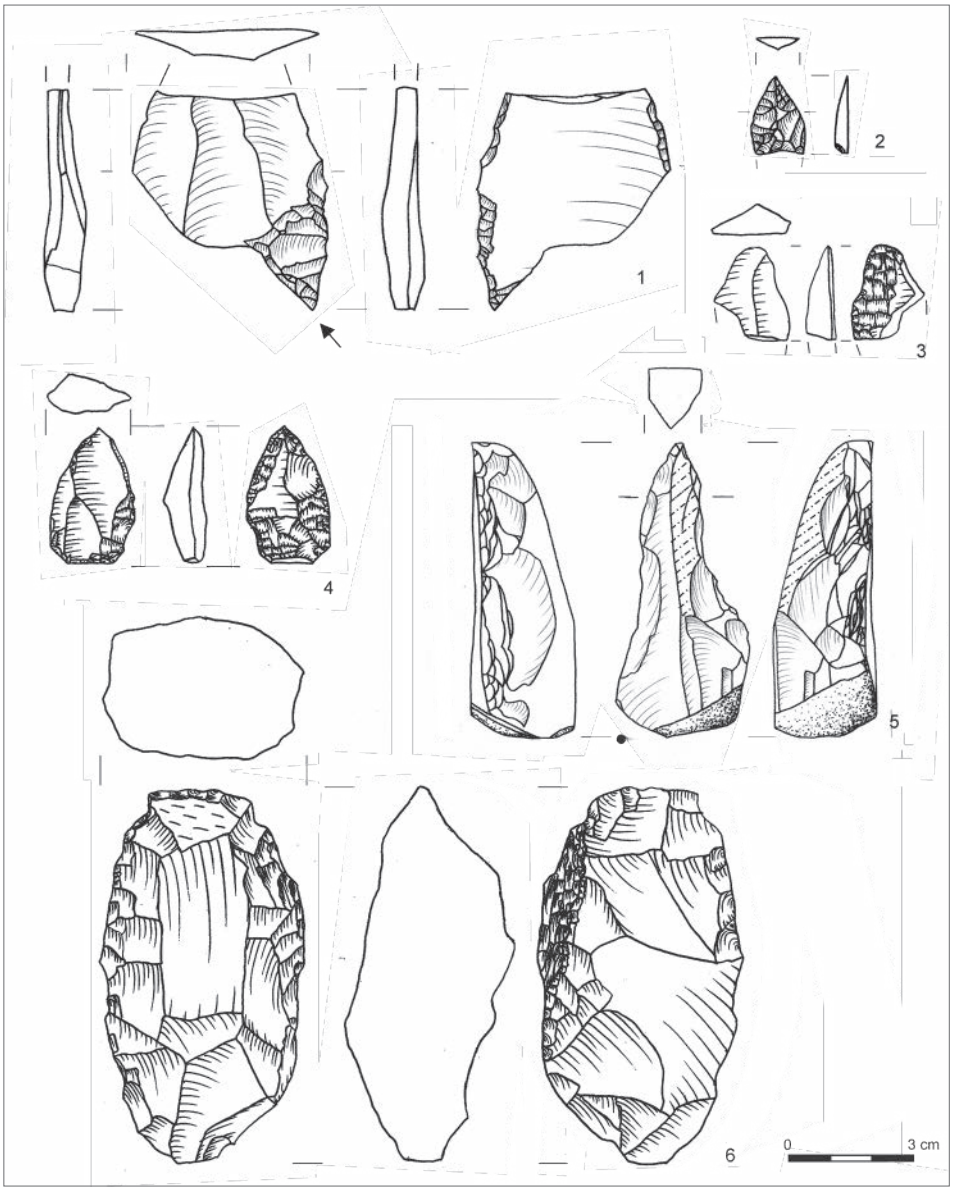

Fig. 15. Flint artifacts from Munqata'a: 1 – burin on a knife; 2, 4 – Nizzanim/Herzliya points; 3 – fragment of retouched tool; 5 – pick; 6 – bifacial tool of the axe-like type (Jagiellonian University HLC Project/drawing A. Brzeska-Zastawna [1, 2, 5], J. Zakrzeńska [3, 4, 6])

2013: 256, 280). An interesting example is also the last of the above mentioned artifacts, a backed blade, which was obtained from the bidirectional blade core, which may be associated with the tradition of PPNB (Barzilai and Goring-Morris 2010). Knives are also found very often in the context of the middle Neolithic (Shea 2013: 252). It should be noted that among the surface finds is also trihedral pick [*Fig. 15:5*]. This is a form commonly found in the Neolithic inventories.

POTTERY FINDS

FAYSALIYYA

A total of 124 pottery fragments were found in the Faisalyyeh site. The fact that the vast majority of them are undiagnostic parts makes their precise recognition and dating almost impossible. It is also difficult to determine whether the findings come from certain stratigraphic contexts. Pottery fragments were found in the rubble associated with the stone structure and the stone backfill located in squares 4112–4212.

Most of the fragments are dark brown and red brown in color. The clay was tempered with a mineral admixture. In this aspect, pottery resembles the fragments discovered during the first season of work.

As most of the fragments are elements of the body, it is difficult to clearly define the form of the vessels. The only diagnostic discovery in square 4112 of an almost complete vessel throws a new light on the findings of the vessels. It is a bowl with a flat bottom and straight walls. The vessel has a characteristic plastic decoration in the form of a rope located below the rim, above which several small oval shallow holes are visible. The bowl was handmade [*Fig. 16*]. The decorative motif and its placement in the upper part of the vessel may suggest connections with the EB IV–MB cooking pots discovered in sites such as Murayghat, Abu Snesleh or Shehem. It is therefore necessary to consider whether the finding should not be dated back to a later time than previously thought, i.e., EB IV–MB. This does not contradict the findings from the first season of research, during which the only diagnostic element was a small fragment of the spout of holemouth jar. EB IV date is also suggested by the C^{14} date received from the sample located nearby the vessel.

It is not clear whether the vessel can be used for dating the whole complex, but at least two other bottoms fragments discovered this season belong to the same type of bowls. They were found, similarly like the example in square 4112 described above.

MUNQATA'A

Fragments of pottery vessels were found in all the excavations examined in 2018, but only in the W trench the artefacts were located *in situ*. In the other two sondages, they were found in a secondary deposit. In the E sondage they were located in a backfill associated with erosion. In the N sondage pottery fragments were deposited in layers of probable destruction of the wall being a continuation of the W11 discovered in 2017. In the Western trench, ceramics rested on the floor adjacent to the inner wall of a large

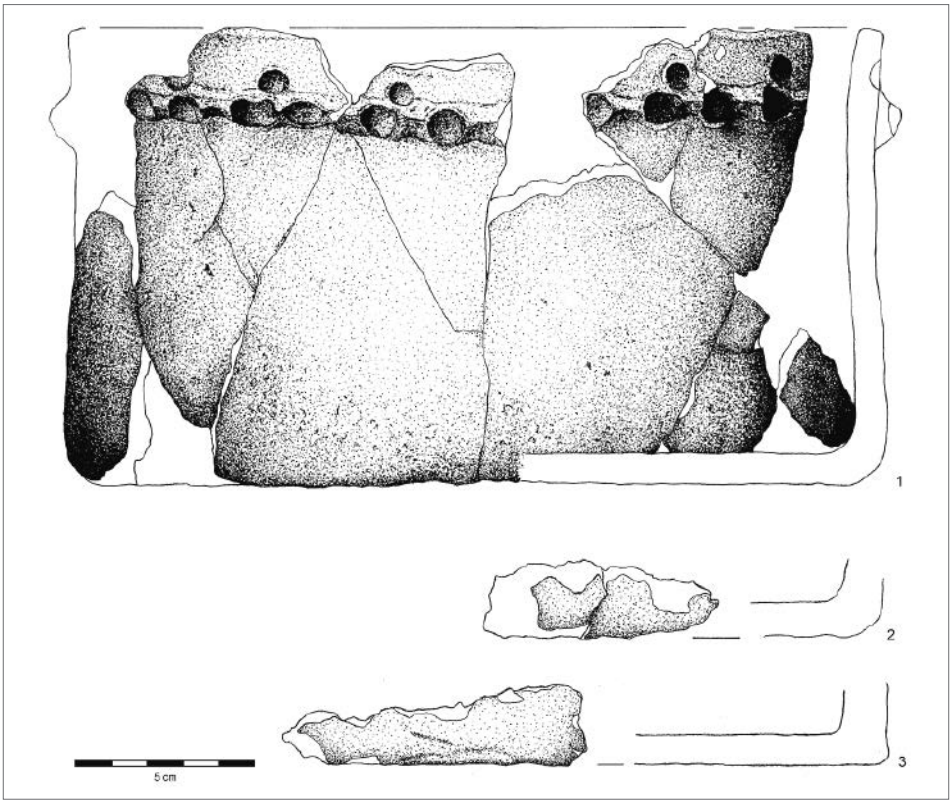

Fig. 16. Faysaliyya. Vessel with characteristic plastic decoration in the form of a rope (EBIV–MB) (Jagiellonian University HLC Project/drawing J. Ledwoń; photo P. Kołodziejczyk)

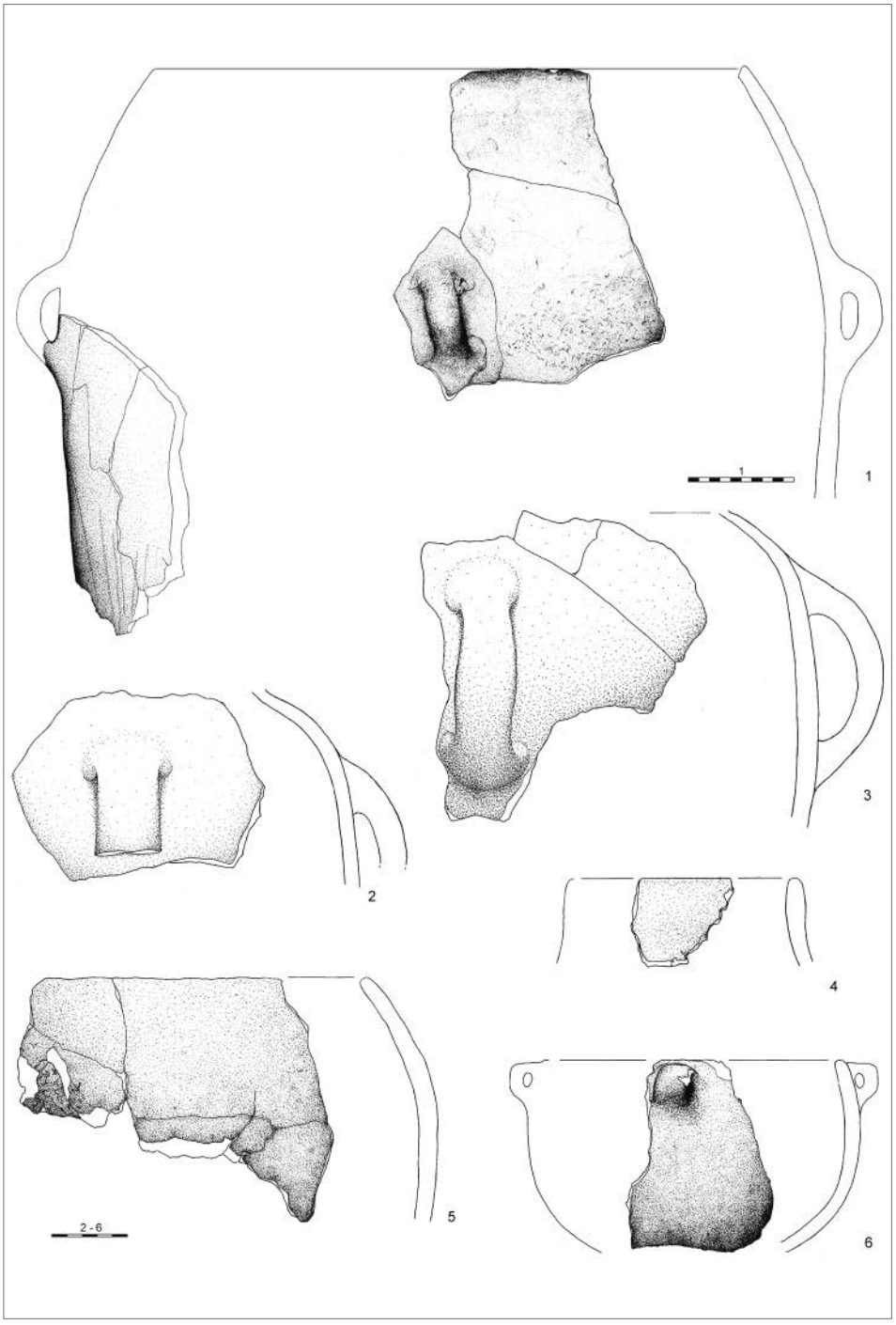

Fig.17. Munqata'a. Pottery from the Jericho IX Horizon (Jagiellonian University HLC Project/drawing B. Klose, J. Ledwoń, B. Witkowska)

building. What is characteristic for this type of situation, large fragments of vessels rested flat on layers of compacted earth floor. In the central part of the trench, however, there were found vessels standing directly by the wall. Most probably they were used to store flint semi-finished products, as in the interior of one of the jugs a starting core was found, while another artifact similar in character was located right next to it, covered with a large number of fragments of a vessel destroyed as a result of the collapse of the building's structure [*Figs 17–18, 19*].

As in the previous season, objects from two chronological horizons were found. Vessels connected with the Pottery Neolithic's Jericho IX culture dominated, whereas in the layers of the landfill and in the top soil single fragments of vessels from the Roman period were found. Findings from the classical period cannot be linked to any of the structures recognized in recent research on the site. Most likely, its appearance is rather accidental and is associated with erosive and post-depositional processes affecting the area around the site.

Open forms prevail among the vessels. These are various types of bowls most often with burnished painted decoration, what is characteristic on the horizon of Jericho IX. According to Garfinkel's terminology (1999), they should be classified in groups C1–C2 and C6 (see Garfinkel 1999: 45–49). One of the bowls, coming from the building

Fig. 18. Munqata'a. Pottery from the Jericho IX Horizon (Jagiellonian University HLC Project/photo P. Kołodziejczyk)

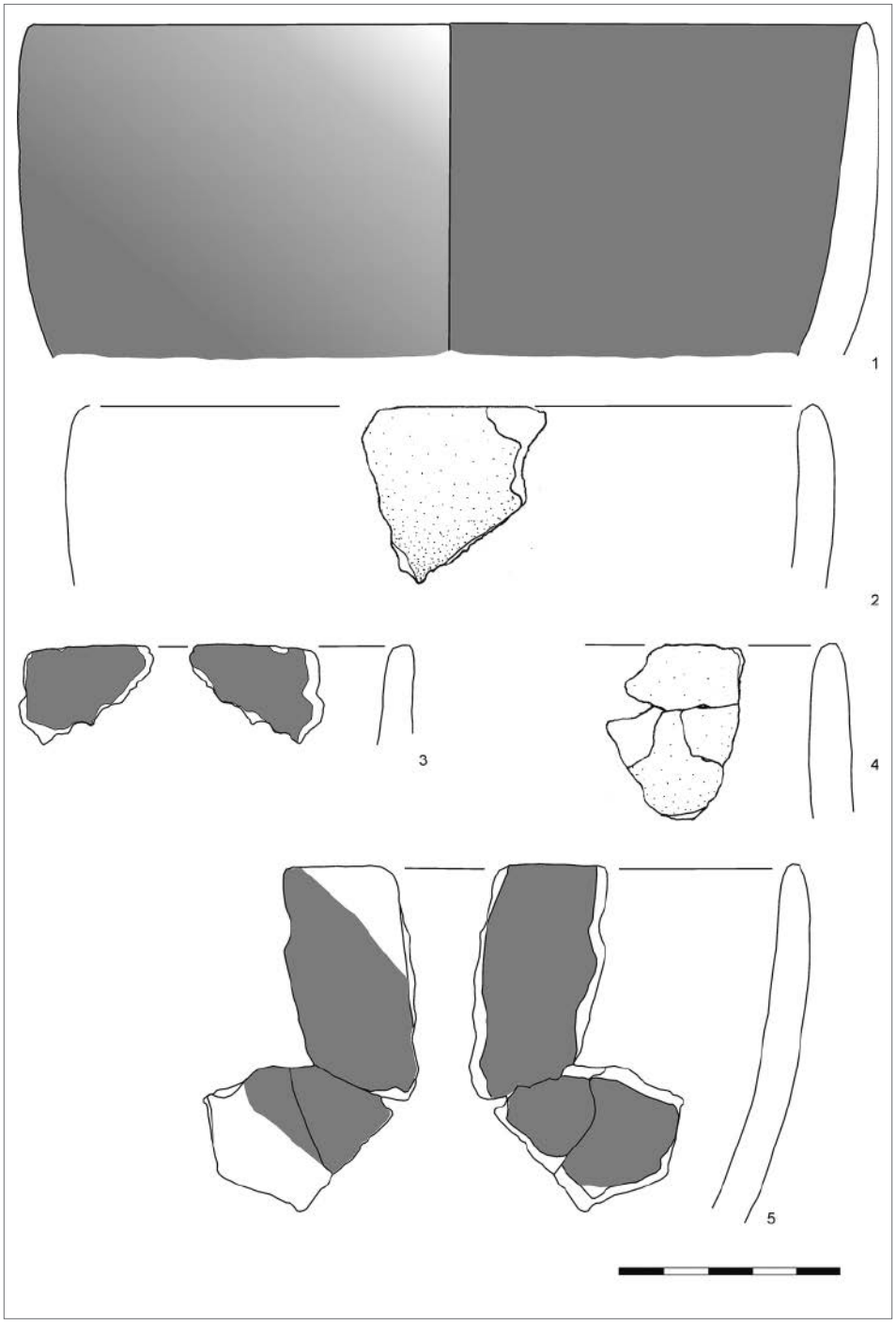

Fig. 19. Munqata'a. Pottery from the Jericho IX Horizon (Jagiellonian University HLC Project/drawing B. Klose)

mentioned above, had small handles located at the rim. The vessel was not decorated. Analogous objects were discovered, among others, in Tel Ice (Segal 2012: Fig. 3:6) or Jericho (Kenyon and Holland 1983: Fig. 38:15). Perhaps the bowl was used as a lid, covering the large storage vessels, fragments of which were found nearby.

A certain novelty in relation to the previous season was the discovery of large storage vessels. They can be assigned to two groups of necked pithoi, group F4 (see Garfinkel 1999: Fig. 61) and holemouth pitoi – group E4 (see Garfinkel 1999: Fig. 52). Both types have wide, simple rims. The most distinctive difference between two mentioned types could be observed in the transition between the body and the neck. The uncovered F4 pots have a simple loop handles here. Analogous vessels come from Ashkelon (Gopher and Blockman 2004: Fig. 13:15–19). Holemouth pithoi have an even simpler shape. Preserved fragments discovered at Munghata are characterized by a barrel-shaped body with relatively straight walls and a wide rim. Like necked pithoi they have loop handles of type 7 according to Gopher and Blockman (2004: 12).

Fig. 20. Faysaliyya. So-called tent stone from Wall 11 (Jagiellonian University HLC Project/ photo P. Kołodziejczyk)

CONCLUSIONS

Research at the Faysaliyya site in the 2018 season has significantly expanded our knowledge of this vast area of human activity in the period of prehistory. They also gave us possibility to specify the dating of structures which were explored here during last two seasons. The excavated relics of the stone structures seem to be a fragment of a small settlement or encampment from the period of late prehistory. Obtained radiocarbon dates [*Table 3*] (with a use of the ^{14}C AMS method by the Poznań Radiocarbon Laboratory) allow for dating these structures to the late phases of the early Bronze Age or the beginning of the middle Bronze Age. At the same time, the characteristic vessel found within locus 118 seems to confirm the proposed chronology. Unfortunately, the remaining ceramic fragments are not diagnostic enough to confirm this dating. Due to the large destruction of the structure explored on square 4112, it is also difficult to answer the question about the relation of the above mentioned vessel and 14C dates which were obtained from samples located several dozen centimetres from the vessel. It is also suspected that these layers un-

derwent fluvial processes that partially mixed the material. However, the flint materials found here (including the core elements that assemble together) seem to confirm that these layers were not completely destroyed and the stratigraphy suggested during analysis seems to be correct. Taking into account the whole of the material, we may suggest dating of these structures as well as objects located within them on the period of early Bronze Age IV or the beginning of middle Bronze Age. This chronological supposition can also be confirmed by such finds like tabular scrapers occurring in this site in large numbers, although this kind of object is also known from earlier periods. It also seems very probable that earlier structures were used to build some fragments of walls, as evidenced by the so-called "tent stone" [*Fig. 20*] found in the construction of the wall 11, characteristic for earlier periods (e.g., Fuji et al. 2012; 2017). The structure in which it was located was previously preliminarily described as a probable dam or type of wall that retained water. In the light of new discoveries made after the excavations were expanded, it should be said that this is rather a kind of homestead surrounding the camp or house made of large stones in its lower parts. We may therefore be dealing here with a settlement used intermittently since the Neolithic times. A large percentage of ubiquitous flint objects from the Paleolithic period is still fascinating, which confirms the thesis about the interesting erosion phenomena taking place here over the hundreds of thousands of years that caused this situation.

In turn, the work carried out at the site of Munqata'a in the 2018 season has not yet confirmed suspicions about the existence in this place of settlements from the Bronze Age. We are most probably dealing here with relics of a settlement located in an extremely difficult to access valley, which functioned from the Prepottery Neolithic period to the so-called Jericho IX horizon or the developed ceramic phase of Neolithic. The only ^{14}C date [see *Table 3*] obtained on the site so far confirms the dating of the youngest phases of the settlement to the period of Jericho IX horizon. However, earlier phases are visible in ceramic inventory and, above all, in flint assemblages. This observation seems to be very important because so far no settlement associated

Table 3. Radiocarbon dates from season 2018 (Poznań Radiocarbon Laboratory)

Site	C^{14} sample/ locus	Sample material	14 C age ±1σ BP	±1σ Calibrated
Faysalliya	PR01 / 118	charcoal	3800 ± 35	2429BC (0.2%) 2425BC 2402BC (1.5%) 2382BC 2349BC (93.4%) 2134BC 2070BC (0.3%) 2065BC
Faysalliya	PR07 / 30	charcoal	3960 ± 35	2573BC (85.1%) 2391BC 2386BC (10.3%) 2346BC
Faysalliya	PR09 / 118	charcoal	4020 ± 35	2624BC (95.4%) 2468BC
Munqata'a	PR0 / 6	charcoal	7200 ± 50	6211BC (95.4%) 5993BC

with the Jericho IX horizon has been found within this area and the closest analogies come from the area of Israel. In this context, therefore, it is important to express the questions about the extent of this cultural unit and the reasons for placing the settlement in such a difficult, almost not accessible place, which is also unfavourable for agricultural activities involving the cultivation of plants. Perhaps the pastoral traditions in this area are much older and characterized this area earlier than we thought till today. Without doubts this site is certainly worth further research and analysis.

The team's work also includes a dissemination activity and cooperation with local universities which is constantly being developed. An important effect of our work is also the implementation of a series of photo exhibitions illustrating the work of the project as well as conducting workshops for young people in schools located on the area of southern Jordan.. As HLC Project deals also with geo-tourist attractions and the region promotion some preliminary reconnaissance concerning the free climbing and trekking areas was also done during the 2018 season. Several new localities with the rock walls possible to climb were visited, photographed and described. It is the basis for preparation of the new rock-climbing guide.

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